REMARKS

By the present Amendment, claims 10, 13, 14, 20, 22, 25, 26, 32, 34, 37, 38 and 44, and claims 11, 12, 15, 19, 23, 24, 27, 31, 35, 36, 39 and 43 are cancelled. This leaves claims 10, 13, 14, 16-18, 20-22, 25, 26, 28-30, 32-34, 37, 38, 40-42, 44 and 45 pending in the application, with claims 10, 22 and 34 being independent.

Claim 10 is amended to add the limitations of claims 11, 12 and 19, plus the effect of claims 14-15. Claim 22 is amended to add the limitations of claims 23, 24 and 31, plus the effect of claims 26-27. Claim 34 is amended to add the limitations of claims 35, 36 and 43, plus add the effect of claims 36-37. The remaining claim modifications are made to conform respective dependent claims to these changes in the independent claims. In this manner, no new issues are raised requiring additional search or consideration. Additionally, these changes place the application in condition for allowance or in better form for appeal. Thus, this Amendment should be entered and considered on its merits even though submitted after a final rejection.

Rejections under 35 U.S.C. §102 and §103

Each of the presently pending independent claims, claims 10, 22 and 34, recite a process for producing adhesion elements on a substrate. The process comprises steps of introducing thixotropic plastic material of polyvinyl siloxane having a viscosity of 7,000 to 15,000 mPas measured with a rotary viscosimeter into at least one shaping element, and forming the plastic material into 16,000 adhesion elements with flared ends per cm^2 accomplishing adhesion predominantly by van-der-Waals forces, and with the flared ends forming heads. The adhesion elements have stem parts with a height from 50 μm to 150 μm and with a diameter from 10 μm to 40 μm. The flared ends have a diameter from 15 μm to 70 μm. Claim 10 further recites that

the heads are formed with essentially flat end surfaces. Claim 22 further recites that the heads are formed with slightly convex end surfaces. Claim 34 further recites that the heads are formed with end surfaces having a concavity.

By performing the process in this manner, the adhesion elements are formed so as to adhere to other surfaces as a result predominantly of van-der-Waals forces, not by interlocking with mating adhesion elements in the nature of a hook-and-loop type fastener, also called a "Velcro" fastener. Such predominant adhesion by van-der-Waals forces is achieved without the defibrillation of adhesion stems formed according to a biomedical model based on a geckos foot, and is made possible with the particular plastic material, density and dimensions of the adhesion elements recited in claims 10, 22 and 34.

Claims 10, 17-18, 22 and 29-30 stand rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent Publication No. 2003/0208888 to Fearing. The Fearing patent publication is cited as disclosing a method in which plastic material is introduced into a shaping element to produce an adhesion element with flared ends, where the adhesion is primarily by intermolecular forces equated to Van der Waals forces. A variety of structures are provided for the end, including a flat end (see claim 12). Fig. 1 of this patent publication is alleged to show a flared end, based on the end widening. Relative to claim 2, a convex shape is allegedly also provided by the disclosure in claim 12. Relative to the angle, paragraph 0018 of the Fearing patent publication is cited.

Claims 10-11, 17-23, 29-35 and 41-45 stand rejected under 35 U.S.C. § 103 as being unpatentable over the Fearing patent publication in view of International Publication WO 02/091870 A1 to Poulakis (with U.S. Patent No. 7,445,741 used as an English language

equivalent thereof). In the alternative to the Fearing alleged description of a flared end shown in Fig. 1 and described in claim 12, the Poulakis patent publication is cited for teaching the use of flared ends.

Relative to claims 11, 23 and 35, the materials are allegedly disclosed in the Fearing patent publication in column 6, lines 37-43, and column 11, lines 45-53. The features of claims 19-20 and 31-32 are allegedly obvious based on the dimensions in paragraph 0013 of the Fearing patent publication. Additionally, the Fearing patent publication allegedly discloses the angles of claims 17-18 and 29-30, and the curing of claims 21 and 33 in paragraphs 0018 and 0115, respectively. The other corresponding dependent claims are treated in a similar manner.

Claims 12-13, 24-25 and 36-37 stand rejected under 35 U.S.C. § 103 as being unpatentable over the Fearing and Poulakis patent publications in view of U.S. Patent No. 7,018,496 to George. The George patent is cited for the use of thixotropic agents or rheoligical modifiers that adjust viscosity (column 13, lines 20-30). In support of the rejection, it is alleged that it would be obvious to adjust the Fearing molding compound viscosity to arrive at the claimed limitations.

Claims 14-15, 26-27 and 38-39 stand rejected under 35 U.S.C. § 103 as being unpatentable over the Fearing and Poulakis patent publications in view of U.S. Patent Publication No. 2005/0072509 to Full. The Full patent publication is cited relative to the specific mold cavity that is allegedly obvious to use in the Fearing system.

Claims 16, 28 and 40 stand rejected under 35 U.S.C. § 103 as being unpatentable over the Fearing and Poulakis patent publications in view of DE 100 39 937 to Tuma (with U.S. Patent

No. 7,445,741 used as an English language equivalent thereof). The Tuma patent is relied upon for a hyperboloid shape that would allegedly be obvious to use in the Fearing system.

The three independent claims are patentably distinguishable over the cited patent documents by (1) the use of thixotropic polyvinyl siloxane with the claimed viscosity to form the adhesion elements, (2) the density of 16,000 elements per cm^2, and (3) the claimed dimensions of the adhesion elements, particularly in combination. Such features are not disclosed or rendered obvious by the cited documents.

Relative to the use of the plastic material forming the adhesive elements, column 6, lines 37-43, and column 11, lines 45-53, of the Fearing publication are cited in paragraph 11 of the Office Action, and paragraphs 70-77 of that publication are cited in paragraph 21 of the Office Action. The George patent is cited for use of thixotropic agents in a thermoplastic in paragraph 21 of the Office Action.

Relative to the recitation of "polyvinyl siloxane", column 6, lines 37-43, and column 11, lines 45-53, of the Fearing publication appear to be incorrectly cited since such locations do not refer to plastic materials and are improper citations for a patent publication. The Fearing publication refers in paragraph [0108] to liquid polymers of polyurethane, polyimide, silicone rubber and polyester resin. However, these materials do not specifically disclose or render obvious polyvinyl siloxane as claimed.

The use of thixotropic agents is allegedly disclosed in the George patent. However, the George patent does not disclose or render obvious such use in polyvinyl siloxane as claimed.

Recognizing that the cited patents do not disclose the cited density and dimensions of the adhesion elements, such features are alleged to be obvious design choices. However, this unique

combination of materials, density and dimensions has been found to be particularly effective for adhesion elements accomplishing adhesion by van-der-Waals forces. Additionally, the claimed features cannot properly be found obvious based on a combination of the Fearing publication with the Poulakis publication and the George patent since the Poulakis publication and the George patent do not relate to elements using van-der-Waals forces, but only relate to the non-analogous hook-and-loop type fasteners.

Claims 13-14, 16-18 and 20-21, claims 25-26, 28-30 and 32-33 and claims 37-38, 40-42 and 44-45, being dependent upon claims 10, 22 and 34, respectively, are also allowable for the above reasons. Moreover, these dependent claims recite additional features further distinguishing them over the cited patents.

Claims 13, 25 and 37 stand rejected by the specific viscosity of the plastic material for forming adhesion elements accomplishing predominately by van-der-Waals forces. The George patent involves a hook-and-loop fastener, not one using van-der-Waals forces predominantly, and thus, is not obvious to combine with the subject matter of the Fearing publication.

Claims 14, 26 and 38 are further distinguishable by the screen having at least 16,000 mold cavities per cm^2. Nothing in the record supports the allegation that it would be obvious to vary the size and number of adhesion elements disclosed in the Fearing publication to provide the claimed range and the new and unobvious result of adhesion predominantly by van-der-Waals forces.

Claims 16, 28 and 40 are further distinguishable by their hyperboloid shape, which is not shown to be obvious in connection with adhesion elements accomplishing adhesion

predominately by van-der-Waals production in the Tuma patent that relates to hook-and-loop fasteners.

Claims 17-18, 29-30 and 41-42 are further distinguishable by the contact angle of the plastic material recited therein. Such contact angle is not disclosed to be obvious for use in connection with adhesion elements accomplishing adhesion predominately by van-der-Waals forces. Paragraph [0018] of the Fearing publication only discloses angles the stems extend from the shafts, not the claimed contact angle of the plastic material for wetting with water.

Claims 19-20, 31-32 and 43-44 are further distinguishable by the specific dimensions of the head adhesion elements so as to provide adhesion predominantly by van-der-Waals forces. Nothing in the Fearing publication teaches or renders obvious those specific dimensional relationships as an obvious design choice.

Claims 21, 33 and 45 are further distinguishable by crosslinking of the plastic material. Crosslinking of the plastic material for adhesion elements accomplishing adhesion predominately by van-der-Waals forces is not rendered obvious by the curing disclosed in paragraph [0115] of the Fearing publication.

In view of the foregoing, the presently pending claims are allowable. Prompt and favorable action is solicited.

Respectfully submitted,

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